



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,124	08/10/2000	Damon F. Kvamme	KLA1P028A	6325

22434 7590 04/08/2002

BEYER WEAVER & THOMAS LLP  
P.O. BOX 778  
BERKELEY, CA 94704-0778

EXAMINER

PHAM, HOA Q

ART UNIT PAPER NUMBER

2877

DATE MAILED: 04/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/636,124

Applicant(s)

KVAMME ET AL.

Examiner

Hoa Q. Pham

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The amendment filed 1/17/02 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the limitation that “**the optical inspection system is configured to perform simultaneous transmitted and reflected light inspection where the amount of light transmitted through the substrate and the amount of light reflected from the substrate is measured via the light detector arrangement**” is not supported by the original disclosure. As understood by examiner, the optical detector arrangement being arranged for sensing the light intensity of either the reflected light or transmitted light, not both at the same time.

Applicant is required to cancel the new matter in the reply to this Office Action.

2. Claims 25-28 and 37 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See explanation above.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2877

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1-4, 6-7, 9, 20, 23, 33, 41, 42 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Karaki et al (5,130,965)

Karaki et al (of record) teach what was claimed in claims 1-4, 6, 7, 9, 20, 23, 41, and 42, for example, a light source, a first set of optical elements, a second set of optical elements and a light detector arrangement, etc...(see figures 1, 3, 4 of Karaki et al).

Regarding claim 2, see figures 2, 4, 5 of Karaki et al.

Regarding claims 3-4, see column 3 lines 40-42 of Karaki et al.

Regarding claims 6-7, see figure 4 of Karaki et al.

Regarding claim 9, see deflector (19) in figure 4 of Karaki et al.

Regarding claims 20 and 46, see objective lens (7) of Karaki et al.

Regarding claim 33, see detector array (11) in figure 4 of Karaki et al.

5. Claims 1-4, 6-7, 9, 20, 23, 33, 41, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Shikichi et al (5,151,888).

Shikichi et al (of record) teach what was claimed in claims 1-4, 6, 7, 9, 20, 23, and 41, for example, a light source, a first set of optical elements, a second set of

Art Unit: 2877

optical elements and a light detector arrangement, etc...(see figures 1, 2, 5 of Shikichi et al).

Regarding claim 2, see figures 4, 5, 7A of Shikichi et al.

Regarding claims 3-4, see figures 4 and 7A of Shikichi et al.

Regarding claims 6-7, see figure 1 of Shikichi et al.

Regarding claim 9, see deflector (4) in figure 1 of Shikichi et al.

Regarding claims 20 and 46, see objective lens (5) of Shikichi et al.

6. Claims 1-17, 20, 30, 41-42, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Vaez-Iravani (6,208,411).

Regarding claims 1 and 41, Vaez-Iravani (of record) teaches a light source (101), a first set of optical elements (102, 104, 105), a second set of optical elements (107) and a light detector arrangement (108), etc...(see figures 1, 2, 5 and column 5 lines 7-14).

Regarding claim 2, see figures 4 and 5 of Vaez-Iravani.

Regarding claims 3-4, see column 4 lines 54-55 for uniform power distribution among the beams.

Regarding claims 5 and 8, Vaez-Iravani teaches that the scanner is a galvo-mirror, resonant mirror scanner (column 7 lines 8), or polygon scanner (column 9 lines 36-45).

Regarding claims 6-7, see column 5 lines 13-15.

Art Unit: 2877

Regarding claims 9-17, Vaez-Iravani teaches that the deflector comprises a AOD or polygon scanner (column 9 lines 44-46) and the beam separator is a diffraction grating (column 4 lines 35-39).

Regarding claims 20 and 46, see objective lens (105) of Vaez-Iravani.

Regarding claim 30, see column 1, line 7 for wafer inspection.

Regarding claim 42, see column 3, line 17 for diffraction grating.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 18-19, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaez-Iravani.

Regarding claim 18, Vaez-Iravani does not explicitly teach that the beam separator is a cube. However, it would have been obvious to replace the separator of Vaez-Iravani by a beam splitter cube because they are function in the same manner.

Regarding claim 19, it would have been obvious to include in Vaez-Iravani a means for controlling scanning spot sizes, thus an accuracy of the measurement is obtained.

Regarding claims 21 and 23, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace means for scanning beams

Art Unit: 2877

in one direction of Vaez-Iravani by moving the substrate in two directions because they are equivalent in function.

9. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanada et al (6,084,716) in view of Vaez-Iravani or Shikichi et al or Karaki et al.

Regarding claims 1-23, 24, 25, 38, and 41, Sanada et al (of record) disclose an optical substrate inspection apparatus which has all the features of the present invention except that the detector arrangement including individual light detectors that each receive individual ones of the plurality of transmitted light or reflected light beam from the tested object. However, such a feature is known in the art, for example as taught by Vaez-Iravani or Shikichi et al or Karaki et al. These references teach the use of individual light detectors that each receive individual one of the plurality of transmitted light (figure 12 of Sanada et al) or reflected light beams (see Vaez-Iravani or Shikichi et al or Karaki et al) from the tested object. Those of ordinary skill in the art at the time the invention was made to replace the detector of Sanada et al by a plurality of individual detectors as taught by Vaez-Iravani or Shikichi or Karaki because they are function in the same manner. A substitution for each other is generally recognized as being within the level of ordinary skill in the art.

Regarding claims 22, 35-40, see column 3, line 5-7 of Sanada et al for comparison between the reference signal and scan signal.

Regarding claims 26-28, 33, see column 4, lines 33-41 of Sanada et al for simultaneously detecting the reflected light and transmitted light.

Regarding claims 29-32, 34, see column 1, lines 5-10 of Sanada et al for inspecting substrate, masks, reticles, or wafers.

Regarding claims 42, see figure 1 of Vaez-Iravani or figure 4 of Karaki et al for diffraction grating 102 or 4.

Regarding claims 43-45, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Sanada et al, Vaez-Iravani, Karaki et al, or Shikichi et al a prism for the purpose of directing individual ones of the plurality of reflected or transmitted beams to individual light detectors.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-46 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-20 of copending Application No. 09/636,129. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are similar in scope.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Response to Arguments***

12. Applicant's arguments filed 1/17/02 have been fully considered but they are not persuasive.

a. Applicant's remarks argue that Karaki et al, Vaez-Iravani, and Shikichi et al references do not teach "**a second set of optical elements adapted for collecting a plurality of transmitted light beams**". The argument is not deemed to be persuasive because the claimed languages are read on the teachings of Karaki et al and shikichi et al. For example, **Figure 4 of Karaki et al teaches a second set of optical elements (9,10) for collecting plurality of transmitted light beams (B1, B2, B3) or see optical elements (8,9) in figure 1 of Shikichi et al or see optical elements (104,107) in figure 1 of Vaez-Iravani.** Applicant is noted that the terms "**transmitted light beams**" can be understood as light transmitted though the first surface of the medium and reflected from the second surface to the detectors as seen from figure 1 of Karachi et al or figure 4 of Shikichi et al. The claims do not teach that the transmitted light beams passed through the substrate. Thus, Karaki et al or Shikichi et al anticipate the claims.

b. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

Art Unit: 2877

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Sanada et al has all the features except the use of individual light detectors that each receive individual ones of the plurality of transmitted or reflected light beam from the tested object. However, such a feature is known in the art as taught by Vaez-Iravani, Shikichi et al, or Karaki et al, thus it would have been obvious to one having ordinary skill in the art to replace the detector of Sanada et al by an array detector taught by Vaez-Iravani, Shikichi, or Karaki et al. The rationale for this modification would have arisen from the fact that all of the references are relative to an inspection device. **In addition, Vaez-Iravani, column 2 lines 4-23, teaches that there is some advantage between the use of multiplicity of the light beams and pinhole arrays.** Thus, the motivation of the combination is found at least in the reference of Vaez-Iravani.

In view of the foregoing, it is believed that the rejection of claims 1-46 under 35 U.S.C 102 and 103 is proper.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

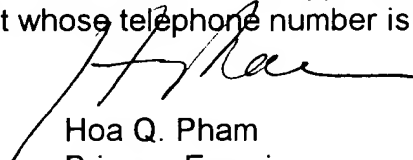
Art Unit: 2877

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (703) 308-4808. The examiner can normally be reached on 6:30 AM to 5 PM Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Hoa Q. Pham  
Primary Examiner  
Art Unit 2877

Pham/hp  
April 4, 2002